



COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications Engineering, Cairo

Graduation Project Description Form

Project Supervisor(s): Prof. Khaled Shehata , Dr Hanady Hussien

Project Title: Design and implementation of Turbo code for 3GPP-LTE

Duration from 9/2013 ___ till 7/2014 _____

Product Category

Algorithm ___ Hardware ___ Software ___

Standards:

Safety: UL, CE _____ IEEE ___ FCC _____

Other _____

Practical Realization Form

PCB _____ Firmware ___ Embedded CPU Kit (ARM, ..etc): _____

PC Software _____ Ready-made Package ___ DSP Kit ___ FPGA Kit

VLSI Schematics ___ VLSI Layout ___ VLSI Silicon (ASIC) _____

Language

VHDL/Verilog Matlab C/C++/Java _____



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Productization

Finished Product Form: __ Possible Commercialization _____

Amount of funds needed for buying components: _____

IEEE GOLD Made-In-Egypt/Engineering Day: _

ITAC (ITIDA) or NTRA Funding Application: _

Testing

Functional__✓ Simulation✓_____ Parameters__ Final Hardware✓_Other:

Lab Test Setup

EMC _____ Environmental_____ Microwave _____ Analog Lab_____ Other:

CAD Tools *(No unauthentic software is allowed):*

Elective Classes Required:

EC 535 Digital VLSI Design



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Abstract

Nowadays, demanding of high speed mobile data service is the reason behind developing various mobile broadband technologies. 3rd Generation Partnership Project Long Term Evolution (3GPP-LTE) is the one of promising 4G wireless technology. One of the main advantages of 3GPP LTE is high throughput. For reliable data transmission over radio channels, forward error correction (FEC) codes are vital. One of the promising techniques used is Turbo code with different standard to approach Shannon limit.

The aim of this project is to design and implement Turbo code for 3GPP-LTE on a field programmable gate array (FPGA). It is an integrated circuit which is configured by special language named a very high speed hardware description language (VHDL),



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References and Links